No. 200300316

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

NDSU Research Foundation

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE , OR CONDITIONING IT PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN PRODUCING A HYBRID OR T VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. IN T STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEE ALL CONFORM TO THE NUMBER OF GENERATIONS SPECIFIED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS 7 U.S.C. 2321 ET SEQ.)

WHEAT, COMMON

'Dapps'

In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this eighteenth day of February, in the year two thousand and four.

Attest:

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of

REPRODUCE LOCALLY. *Include form number and date on all reproductions* — Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER
NDSU Research Foundation

2. TEMPORARY DESIGNATION OR EXPERIMENTAL NAME
ND724

3. VARIETY NAME
'Dapps'

4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP Code, and Country)*
PO Box 5002
1735 NDSU Research Park Drive
Fargo, ND 58105-5002

5. TELEPHONE *(include area code)*
(701) 231-8931

6. FAX *(include area code)*
(701) 231-6661

FOR OFFICIAL USE ONLY

PVPO NUMBER
200300316

FILING DATE
August 22, 2003

7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION *(corporation, partnership, association, etc.)*
501 (C) 3 Corporation

8. IF INCORPORATED, GIVE STATE OF INCORPORATION
North Dakota

9. DATE OF INCORPORATION
May, 1989

10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION. *(First person listed will receive all papers)*

Mohamed Mergoum
Department of Plant Sciences
North Dakota State University
PO Box 5051
Fargo, ND 58105-5051

Dale Zetocha
Executive Director
NDSU Research Foundation
PO Box 5002
Fargo, ND 58105-5002

FEES RECEIVED
FILING AND EXAMINATION FEES: $ 3652.00 DATE 8/22/2003
CERTIFICATION FEE: $ 432.00 DATE 02/09/2004

11. TELEPHONE *(Include area code)*
701-231-8478

12. FAX *(Include area code)*
701-231-8474

13. E-MAIL
mohamed.mergoum@ndsu.nodak.edu

14. CROP KIND *(Common Name)*
hard red spring wheat

15. GENUS AND SPECIES NAME OF CROP
Triticum aestivum L.

16. FAMILY NAME *(Botanical)*
Gramineae

17. IS THE VARIETY A FIRST GENERATION HYBRID?
☐ YES ☑ NO

18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)
- a. ☑ Exhibit A. Origin and Breeding History of the Variety
- b. ☑ Exhibit B. Statement of Distinctness
- c. ☑ Exhibit C. Objective Description of Variety
- d. ☑ Exhibit D. Additional Description of the Variety *(Optional)*
- e. ☑ Exhibit E. Statement of the Basis of the Owner's Ownership
- f. ☑ Voucher Sample *(2,500 viable untreated seeds or, for tuber propagated varieties, verification that tissue culture will be deposited and maintained in an approved public repository)*
- g. ☑ Filing and Examination Fee ($3,652), made payable to "Treasurer of the United States" *(Mail to the Plant Variety Protection Office)*

19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? *See Section 83(a) of the Plant Variety Protection Act)*
☒ YES *(If "yes", answer items 20 and 21 below)* ☐ NO *(If "no", go to item 22)*

20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF CLASSES? ☑ YES ☐ NO
IF YES, WHICH CLASSES? ☑ FOUNDATION ☑ REGISTERED ☑ CERTIFIED

21. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? ☐ YES ☑ NO
IF YES, SPECIFY THE NUMBER 1,2,3, etc. FOR EACH CLASS.
☐ FOUNDATION ☐ REGISTERED ☐ CERTIFIED
(If additional explanation is necessary, please use the space indicated on the reverse.)

22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U. S. OR OTHER COUNTRIES?
☑ YES ☐ NO
IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. *(Please use space indicated on reverse.)*

23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT *(PLANT BREEDER'S RIGHT OR PATENT)*?
☑ YES ☐ NO
IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. *(Please use space indicated on reverse.)*

24. The owners declare that a viable sample of basic seed of the variety has been furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate.

The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Owner(s) is(are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF OWNER		SIGNATURE OF OWNER	
Dale Zetocha			
NAME *(Please print or type)*		NAME *(Please print or type)*	
Dale Zetocha			
CAPACITY OR TITLE	DATE	CAPACITY OR TITLE	DATE
Executive Director NDSU Research Foundation	8/12/03		

INSTRUCTIONS

2003 0316

GENERAL: To be effectively filed with the Plant Variety Protection Office (PVPO), **ALL** of the following items must be **received** in the PVPO: (1) Completed application form signed by the owner; (2) completed exhibits A, B, C, E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety at least 2,500 untreated seeds of each line necessary to **reproduce** the variety, or for tuber reproduced varieties verification that a viable *(in the sense that it will reproduce an entire plant)* tissue culture will be deposited and maintained in an approved public repository; (4) check drawn on a U.S. bank for $3,652 ($432 filing fee and $3,220 examination fee), payable to "Treasurer of the United States" *(See Section 97.6 of the Regulations and Rules of Practice.)* Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 401, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. **DO NOT** use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of $432 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office
Telephone: (301) 504-5518
FAX: (301) 504-5291
Homepage: http://www.ams.usda.gov/science/pvpo/pvp.htm

ITEM

18a. Give: (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
(2) the details of subsequent stages of selection and multiplication;
(3) evidence of uniformity and stability; and
(4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified

18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:

(1) identify these varieties and state all differences objectively;
(2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
(3) submit, if helpful, seed and plant specimens or photographs (prints) of seed and plant comparisons which clearly indicate distinctness.

18c. Exhibit C forms are available from the PVPO Office for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.

18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant color, disease resistance, *etc.*

18e. Section 52(5) of the Act requires applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.

19. If "Yes" is specified *(seed of this variety be sold by variety name only, as a class of certified seed)*, the applicant **MAY NOT** reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, the applicant may change the choice. *(See Regulations and Rules of Practice, Section 97.103).*

22. *See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.*

23. *See Section 55 of the Act for instructions on claiming the benefit of an earlier filing date.*

21. CONTINUED FROM FRONT *(Please provide a statement as to the limitation and sequence of generations that may be certified.)*

22. CONTINUED FROM FRONT *(Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.)*

USA - Released as a named cultivar, January 15, 2003.
First sale of seed to ND Crop Improvement Association, February 11, 2003.

23. CONTINUED FROM FRONT *(Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).)*

'Grandin' wheat is a component of this variety and received Plant Breeders' Rights Protection in Canada - Certificate No. 0046 on August 25, 1993 by the North Dakota Agricultural Experiment Station.

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. *(See Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of the Regulations and Rules of Practice.)*

To avoid conflict with other variety names in use, the applicant must check the appropriate recognized authority. For example, for agricultural and vegetable crops, contact: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089. http://www.ams.usda.gov/lsg/seed.htm

ST-470 (02-10-2003) designed by the Plant Variety Protection Office with Word 2000. Replaces former versions of ST-470, which are obsolete.

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EXIBIT A – ORIGIN AND BREEDING HISTORY

'Dapps'

Spring 1991 — Original cross was made at North Dakota State University (NDSU) Greenhouse at Fargo, ND.

Pedigree- KITT/AMIDON//GR/STOA sib

KITT is a hard red spring wheat cultivar released by the University of Minnesota.
AMIDON) is a hard red spring wheat cultivar released by NDSU-AES in 1988
GR= GRANDIN is a hard red spring wheat cultivar released by NDSU-AES in 1989.
STOA sib is public breeding line sister lof the cultivar "STOA" released by NDSU-AES in 1984.

Fall 1991	F1 plants, NDSU Greenhouse.
Spring 1992	F2 plants, NDSU greenhouse.
Summer 1992	F3, NDSU research land at Prosper. 10 heads selected and bulked.
Summer 1993	F4 plot, NDSU research farm at Casselton: Bulk of 10 heads was planted in Exp. 45, plot # 780.
Summer 1994	F5, NDSU research farm at Casselton: One row (plot # 233) was selected from Exp. 25.
Summer 1995	F6 preliminary yield trial, two locations, NDSU research farm at Casselton and Prosper (Exp. 14) plot # 1069.
Summer 1996	F7 advanced yield trial, two locations, NDSU research farm at Casselton and Prosper (Exp. 13), plot # 1012.
Winter-Spring 1996-97	F8, seed increase and purification, Christchurch, New Zealand (Plot # 625).
Summer 1997	F9, advanced yield trials, 4 locations, NDSU Research and Extension Centers (Exp. 14) plot # 1202.

Summer 1998	F10, seed increase, NDSU research farm at Casselton (Drill strip Casselton, Inc# 18), elite yield trials, 4 locations, NDSU Research and Extension Centers.
Summer 1999	F11, statewide yield trial, 6 locations, NDSU Research and Extension Centers. Uniform Regional Hard Red Spring Wheat Nursery, 8 locations, North Dakota, South Dakota, and Minnesota. Experiment line designation- ND 724.
Summer 2000	F12, statewide yield trial, 6 locations, NDSU Research and Extension Centers. Uniform Regional Hard Red Spring Wheat Nursery, 8 locations, North Dakota, South Dakota, and Minnesota.
Summer 2001	Seed increase by Seedstocks project.
Summer 2002	Second year seed increase by Seedstocks project.
January 15, 2003	ND 724 was released as a named cultivar, Dapps.
Febuary 11, 2003	First sale seed of Dapps.

Dapps was observed for eight crop cycles (F_6-F_{13}) generations) from 1995 to 2003 and was stable and uniform within commercially acceptable limits for all traits described in Exhibit C. Taller plants variants (5-10 cm) at a frequency of 1/1,000 and aweless plant variants at a trace frequency of less than 1/10,000.

Dapps was developed using a modified pedigree and single seed descent methods. Selection criteria for the breeding of Dapps wheat were highly heritable traits (e.i. plant height, maturity, and disease resistance) in early segregating generations F_2-F_5. Starting at F_6 generation, selection criteria also included grain yield, lodging resistance, shattering resistance, test and kernel weights and bread making characters (grain protein, milling extraction, dough mixing, loaf volume, external and internal loaf appearance). Data used to evaluate line ND 724 that is named Dapps were collected from numerous locations and across years. Overall, the selection criteria were a combination of traits used to identify a superior hard spring wheat genotype adapted to North Dakota wheat production with superior (compared to check cultivars) milling and bread-making properties for domestic and export markets. In this regard, Dapps was selected, particularly for its high protein content and quality traits.

To the best of my knowledge, Dapps most resembles Amidon, Keene and Parshall HRS wheats. These cultivars can be unambiguously differentiated at the molecular level using microsatellite markers. The microsatellite loci we have used are described by Cregan and associates. DNA fragment analysis was carried out on 6% denaturing polyacrylamide gel using DNA silver staining system from Promega (Madison, WI) The procedure was repeated to confirm reproducibility of the results.

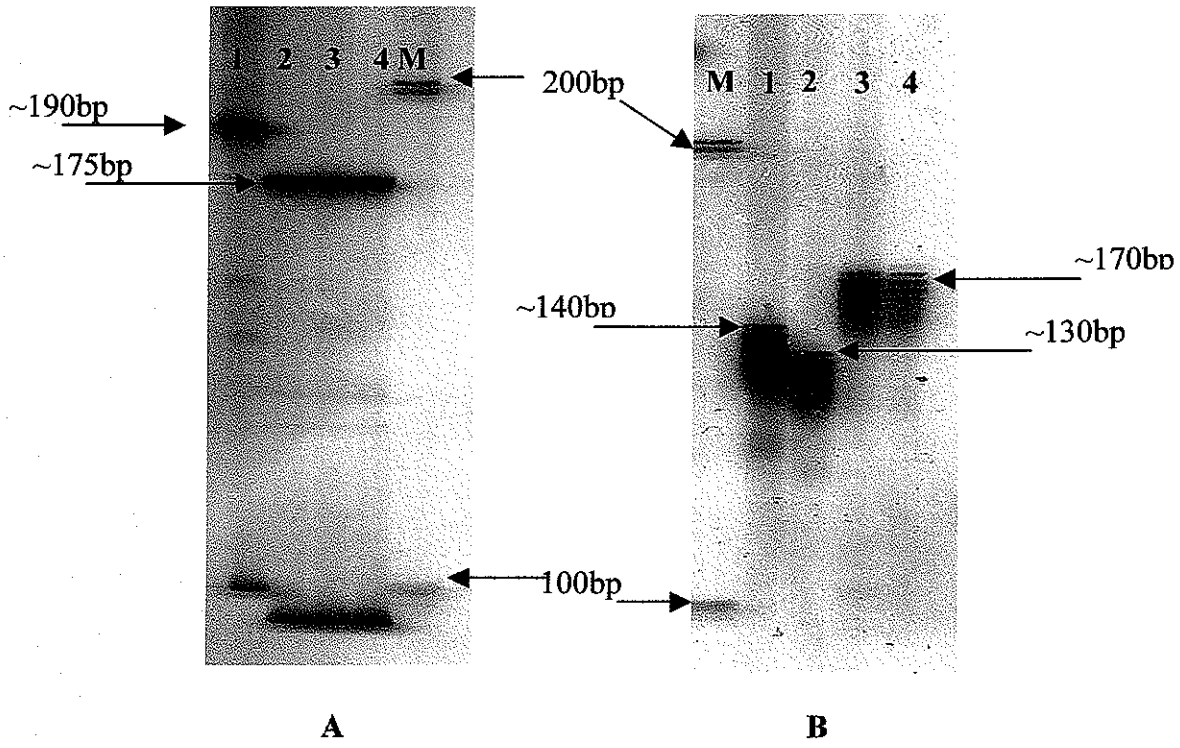

Figure 1: Microsatellite analysis to differentiate Dapps (lane 1) from Amidon (lane 2), Keene (lane 3), and Parshall (lane 4). Lane 'M' is a molecular weight standard.
(A) Microsatellite *XBarc 59*. Dapps shows a band of ~190 bp whereas Amidon, Keene and Parshall show a band at ~175bp.
(B) Microsatellite *Xbarc 267*. Dapps shows a band of ~140bp whereas Keene and Parshall show a band at ~170bp and Amidon at ~130bp

Reference:

Cregan, P. et al (unpublished data). Primer information taken from http://www.scabusa.org/pdfs/BARC_SSRs_011101.xls (July, 16 2003)

REPRODUCE LOCALLY. Include form number and date on all reproductions.

Form Approved - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY
PLANT VARIETY PROTECTION OFFICE
BELTSVILLE, MD 20705

EXHIBIT C
(*Wheat*)

OBJECTIVE DESCRIPTION OF VARIETY
WHEAT (*Triticum* spp.)

NAME OF APPLICANT(S)

NDSU RESEARCH FOUNDATION

ADDRESS (*Street and No. or RD No., City, State, and Zip Code*)

NDSU Research Foundation
1735 NDSU Research Park Drive
P.O. Box 5002, FARGO, ND 58105-5002

FOR OFFICIAL USE ONLY

PVPO NUMBER 200300316

VARIETY NAME
Dapps

TEMPORARY OR EXPERIMENTAL DESIGNATION
ND 724.

PLEASE READ ALL INSTRUCTIONS CAREFULLY: Place the appropriate number that describes the varietal character of this variety in the boxes below. Place a zero in the first box (e.g. [0][9][9] or [0][9]) when number is either 99 or less or 9 or less respectively. Data for quantitative plant characters should be based on a minimum of 100 plants. Comparative data should be determined from varieties entered in the same trial. Royal Horticultural Society or any recognized color standard may be used to determine plant colors; designate system used: _____

Please answer all questions for your variety; lack of response may delay progress of your application.

1. KIND:

[1]
1=Common
2=Durum
3=Club
4=Other (SPECIFY) : _____

2. VERNALIZATION:

[1]
1=Spring
2=Winter
3=Other (SPECIFY) : _____

3. COLEOPTILE ANTHOCYANIN:

[1] 1 = Absent 2 = Present

4. JUVENILE PLANT GROWTH:

[2] 1 = Prostrate 2 = Semi-erect 3 = Erect

5. PLANT COLOR (boot stage):

[2]
1 = Yellow-Green
2 = Green
3 = Blue-Green

6. FLAG LEAF (boot stage):

[2] 1 = Erect 2 = Recurved

[2] 1 = Not Twisted 2 = Twisted

[2] 1 = Wax Absent 2 = Wax Present

7. EAR EMERGENCE:

[0][6][1] Number of Days (Average)

[0][1] Number of Days Earlier Than ALsen *

Same as Reeder *

[0][1] Number of Days Later Than Butte 86 *

* Relative to a PVPO-Approved Commercial Variety Grown in the Same Trial

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8. ANTHER COLOR:

[1]
1 = Yellow
2 = Purple

9. PLANT HEIGHT (from soil to top of head, excluding awns):

[0][9][4] cm (Average)

[1][3] cm Taller Than Alsen *

Same as Keene *

[-][-] cm Shorter Than – *

10. STEM:

A. ANTHOCYANIN

[1]
1= Absent
2 = Present

B. WAXY BLOOM

[1]
1 = Absent
2 = Present

C. HAIRINESS
(last internode of rachis)

[2]
1 = Absent
2 = Present

D. INTERNODE

[1] 1 = Hollow 2 = Semi-solid 3 = Solid

[ ] Number of Nodes

E. PEDUNCLE

[2] 1 = Erect 2 = Recurved 3 = Semi-erect

[3][2] cm Length

F. AURICLE

[1] Anthocyanin 1 = Absent 2 = Present

[2] Hair 1 = Absent 2 = Present

11. HEAD (at Maturity):

A. DENSITY

[2]
1 = Lax
2 = Middense (Laxidense)
3 = Dense

B. SHAPE

[1]
1 = Tapering
2 = Strap
3 = Clavate
4 = Other (SPECIFY):_____

C. CURVATURE

[2]
1 = Erect
2 = Inclined
3 = Recurved

D. AWNEDNESS

[4]
1 = Awnless
2 = Apically Awnletted
3 = Awnletted
4 = Awned

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12. GLUMES (at Maturity):

A. COLOR

[1]
1 = White
2 = Tan
3 = Other (SPECIFY) : _____

B. SHOULDER

[5]
1 = Wanting 2 = Oblique
3 = Rounded 4 = Square
5 = Elevated 6 = Apiculate
7 = Other (SPECIFY):_____

C. SHOULDER WIDTH

[2]
1 = Narrow
2 = Medium
3 = Wide

D. BEAK

[3]
1 = Obtuse
2 = Acute
3 = Acuminate

E. BEAK WIDTH

[2]
1 = Narrow
2 = Medium
3 = Wide

F. GLUME LENGTH

[2]
1 = Short (ca. 7mm)
2 = Medium (ca. 8mm)
3 = Long (ca. 9mm)

G. WIDTH

[2]
1 = Narrow (ca. 3mm)
2 = Medium (ca. 3.5mm)
3 = Wide (ca. 4mm)

13. SEED

A. SHAPE

[2]
1 = Ovate
2 = Oval
3 = Elliptical

B. CHEEK

[1]
1 = Rounded
2 = Angular

C. BRUSH

[2]
1 = Short
2 = Medium
3 = Long

[ ]
1 = Not Collared
2 = Collared

D. CREASE

[2]
1 = Width 60% or less of Kernel
2 = Width 80% or less of Kernel
3 = Width Nearly as Wide as Kernel

[2]
1 = Depth 20% or less of Kernel
2 = Depth 35% or less of Kernel
3 = Depth 50% or less of Kernel

E. COLOR

[3]
1 = White
2 = Amber
3 = Red
4 = Other (SPECIFY): _____

F. TEXTURE

[1]
1 = Hard
2 = Soft
3 = Other (SPECIFY): _____

G. PHENOL REACTION (*see instructions*):

[4]
1 = Ivory 4 = Dark Brown
2 = Fawn 5 = Black
3 = Light Brown

H. SEED WEIGHT

[3][2] g/1000 seed (Whole number only)

I. GERM SIZE

[2]
1 = Small
2 = Midsize
3 = Large

14. Disease : (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

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PLEASE INDICATE THE SPECIFIC RACE OR STRAIN TESTED

[2]	Stem Rust *(Puccinia graminis* f. sp. *tritici)* Pgt- QCCJ,-QTHJ,-RTQQ,-TPMK, -QFCQ,-THLK,-HPHJ	[2]	Leaf Rust *(Puccinia recondita* f. sp. *tritici)* THBL - Predominant race in ND
[3]	Stripe Rust *(Puccinia striiformis)* Natural infection (Heltinger 2003)	[0]	Loose Smut *(Ustilago tritici)*
[3]	Tan Spot *(Pyrenophora tritici-repentis)*	[0]	Flag Smut *(Urocystis agropyri)*
[0]	Halo Spot *(Selenophoma donacis)*	[0]	Common Bunt *(Tilletia tritici* or *T. laevis)*
[3]	*Septoria nodorum* (Glume Blotch)	[0]	Dwarf Bunt *(Tilletia controversa)*
[0]	*Septoria avenae* (Speckled Leaf Disease)	[0]	Karnal Bunt *(Tilletia indica)*
[0]	*Septoria tritici* (Speckled Leaf Blotch)	[0]	Powdery Mildew *(Erysiphe graminis* f. sp. *tritici)*
[3]	Scab (*Fusarium* spp.) Natural infection	[0]	"Snow Molds"
[3]	"Black Point" (Kernel Smudge)	[0]	Common Root Rot *(Fusarium, Cochliobolus* and *Bipolaris* spp.)
[0]	Barley Yellow Dwarf Virus (BYDV)	[0]	Rhizoctonia Root Rot *(Rhizoctonia solani)*
[0]	Soilborne Mosaic Virus (SBMV)	[0]	Black Chaff *(Xanthomonas campestris* pv. *translucens)*
[0]	Wheat Yellow (Spindle Streak) Mosaic Virus	[0]	Bacterial Leaf Blight *(Pseudomonas syringae* pv. *syringae)*
[0]	Wheat Streak Mosaic Virus (WSMV)	[ ]	Other (SPECIFY) _____
[ ]	Other (SPECIFY) _____	[ ]	Other (SPECIFY) _____
[ ]	Other (SPECIFY) _____	[ ]	Other (SPECIFY) _____
[ ]	Other (SPECIFY) _____	[ ]	Other (SPECIFY) _____

15. INSECT: (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

PLEASE SPECIFY BIOTYPE (where needed)

[0]	Hessian Fly *(Mayetiola destructor)*	[3]	Other (SPECIFY) Wheat midge
[0]	Stem Sawfly *(Cephus* spp.)	[ ]	Other (SPECIFY) _____
[0]	Cereal Leaf Beetle *(Oulema melanopa)*	[ ]	Other (SPECIFY) _____
[0]	Russian Aphid *(Diuraphis noxia)*	[ ]	Other (SPECIFY) _____

15. INSECT: *Continued* (0=Not Tested; 1=Susceptible; 2=Resistant; 3=Intermediate; 4=Tolerant)

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PLEASE SPECIFY BIOTYPE (where needed)

[0] Greenbug *(Schizaphis graminum)*

[ ] Other (SPECIFY) —

[0] Aphids

[ ] Other (SPECIFY) —

16. ADDITIONAL INFORMATION ON ANY ITEM ABOVE, OR GENERAL COMMENTS

EXHIBIT D – ADDITIONAL DATA

1. Dapps (ND 724) is high protein cultivar with excellent breadmaking attributes (attached Tables 1 and 2)

2. Dapps grain yield and agronomic traits are included in Table 3.

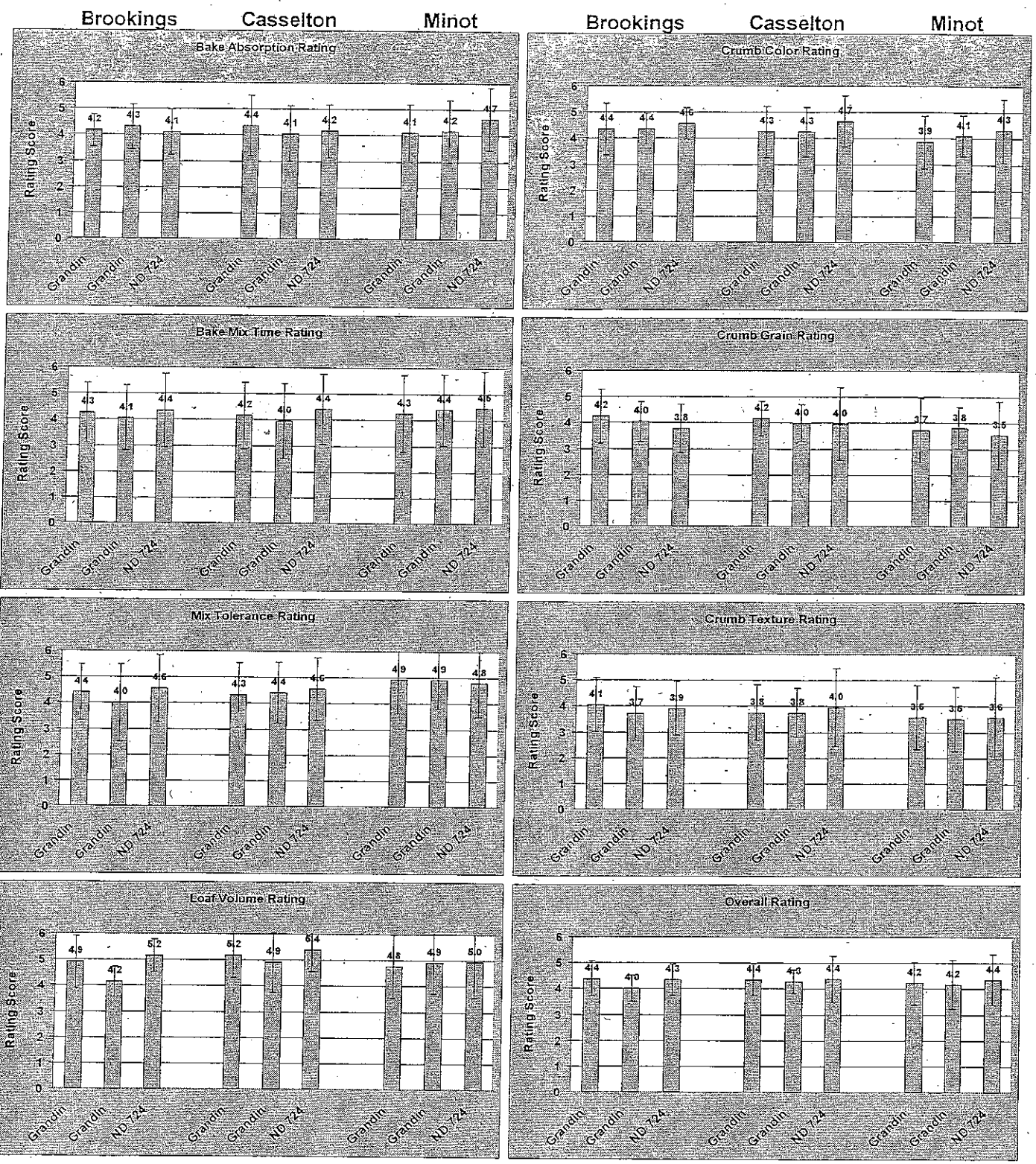
Table 1. Analytical, milling and baking data of "Dapps" (ND 724) from seed samples collected from 19 locations in North Dakota during the 1999-2002 period.

THE VALUES WERE DETERMINED
BY AVERAGING VALUES FROM
THE FOLLOWING .1999
2000
2001
2002

NORTH DAKOTA STATE UNIVERSITY
AGRICULTURAL EXPERIMENT STATION
DEPARTMENT OF CEREAL SCIENCE AND FOOD TECHNOLOGY
ANALYTICAL, MILLING AND BAKING DATA
FIELD PLOT VARIETY TRIALS
AVERAGE DATA: FOUR YEARS (19 GROWING LOCATIONS)
TABLE 1

										FARINOGRAM				3 HOUR FERMENTATION							
		TEST	VIT	WHT FAL	PROTEIN 14% MB		FLR	WET	FLR	PEAK MIX				MIX	LOAF						
VARIETY OR NUMBER	YLD BPA	WT LB/BU	KER %	NO SEC	WHT %	FLR %	EXT %	GLU %	ASH %	TIME MIN	TOL MIN	MTI BU	CLASS	ABS %	TIME MIN	DO	VOL CC	G-T	CB CL	CT CL	SYM
ALSEN	ND	61.4	90	409	15.5	14.7	68.1	40.4	0.49	10.1	18.4	25	6.4	65.8	2.25	10.0	1075	8.0	8.2	10.0	10.0
ND724	ND	59.8	91	409	16.6	15.9	69.5	44.8	0.45	10.8	21.0	19	7.1	66.4	2.20	10.0	1130	8.2	8.9	10.0	10.0
PARSHALL	ND	61.7	90	394	15.5	14.6	68.7	40.9	0.45	10.6	19.4	22	6.4	65.1	2.25	10.0	1102	8.1	8.8	10.0	10.0
REEDER	ND	60.7	87	428	15.3	14.4	67.6	41.4	0.43	8.0	14.9	22	5.8	64.7	1.95	9.9	1032	7.8	7.9	10.0	9.8

Table 2. Average rating data of all collaborators with Wheat Quality Council on baking Properties of "Dapps" (ND 724).



Variety	T. Wt. lb/bu	Wheat* Protein,%	Flour** Ext.%
Grandin	59.1	16.4	73.5
ND724	59.3	16.8	74.5

*14% mb, **USDA Buhler experimental mill

Table 3. Summary of agronomic traits of "Dapps" (ND724) and selected HRS wheat cultivars in the variety trials at ND-REC during the period of 1999-2002.

Variety or line	Headed (23)§	Height (23)	Lodging score (4)	Leaf disease (7)	Test weight (24)	Grain yield (24)
	Days	inches	0-9	%		
Conventional						
Keene	59	33.2	1.9	25.5	60.2	48.1
Russ	58	31.4	3	70	59.0	51.8
Gunner	61	30.8	2.4	38	60.4	45.7
Ingot	57	32.7	2.7	76	61.4	46.5
Parshall	58	32.3	2.15	42	60.5	46.9
ND724	**58**	**33.2**	**1.5**	**29**	**59.0**	**46.6**
Semi-dwarf						
Oxen	58	30.0	2.05	74	58.9	50.9
HJ98	60	29.2	2.8	64	58.8	55.5
Ember	56	28.8	2.85	54	60.5	46.0
Reeder	57	30.4	1.55	38.5	59.6	51.5
Norpro	58	27.0	1.15	37	59.8	55.7
Alsen	58	29.8	1.75	38	60.5	47.7

REPRODUCE LOCALLY. Include form number and edition date on all reproductions. FORM APPROVED - OMB No. 0581-0055

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

Application is required in order to determine if a plant variety protection certificate is to be issued *(7 U.S.C. 2421)*. The information is held confidential until the certificate is issued *(7 U.S.C. 2426)*.

1. NAME OF APPLICANT(S)	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME
NDSU Research Foundation	ND724	'Dapps'
4. ADDRESS *(Street and No., or R.F.D. No., City, State, and ZIP, and Country)*	**5. TELEPHONE** *(Include area code)*	**6. FAX** *(Include area code)*
C/O Executive Director PO Box 5002 Fargo, ND 58105	701-231-8931	701-231-6661
	7. PVPO NUMBER	2003 0 03 16

8. Does the applicant own all rights to the variety? Mark an "X" in the appropriate block. **If no, please explain.** ☑ **YES** ☐ **NO**

9. Is the applicant (individual or company) a U.S. national or a U.S. based company? **If no, give name of country.** ☑ **YES** ☐ **NO**

10. Is the applicant the original owner? ☐ **YES** ☑ **NO** **If no, please answer one of the following:**

a. If the original rights to variety were owned by individual(s), is (are) the original owner(s) a U.S. National(s)?
☐ **YES** ☐ **NO** **If no, give name of country**

b. If the original rights to variety were owned by a company(ies), is (are) the original owner(s) a U.S. based company?
☑ **YES** ☐ **NO** **If no, give name of country**

11. Additional explanation on ownership *(Trace ownership from original breeder to current owner. Use the reverse for extra space if needed)*:

See additional exhibit E - Statement of the Basis of the Applicant's Ownership.

PLEASE NOTE:

Plant variety protection can only be afforded to the owners (not licensees) who meet the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by nationals of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed the final breeding. See Section 41(a)(2) of the Plant Variety Protection Act for definitions.

EXHIBIT E – STATEMENT OF THE BASIS OF THE APPLICANT'S OWNERSHIP

Dr. Mohamed Mergoum, an employee of the North Dakota Agricultural Experiment Station and North Dakota State University, is a plant breeder who developed 'Dapps' the hard red spring wheat cultivar for which Plant Variety Protection is hereby sought. The employee by agreement and because of the condition of the use of facilities and funds of the North Dakota Agricultural Experiment Station and North Dakota State University has assigned all ownership rights to 'Dapps' hard red spring wheat to the North Dakota Agricultural Experiment Station and North Dakota State University.

North Dakota State University on behalf of the North Dakota Agricultural Experiment Station has assigned all ownership to the NDSU Research Foundation. The NDSU Research Foundation is a nonprofit corporation set up to own and manage the intellectual property of North Dakota State University.